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appearing on behalf of the
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Incomplete Portrayal of Styrene Epidemiological Data

- Emphasis on Kogevinas *et al.* (1994) and Delzell *et al.* (2006) studies
- Positive effects emphasized
- Null effects on same endpoints predominate in the literature, not emphasized
- Profile doesn't discuss most other studies of these cohorts and studies of other cohorts
- In fact, no consistent association w/cancer risk

Emphasis on Risk Based on One Exposure Measure

- NTP singled out association between leukemia and peak styrene exposures in the Delzell *et al*. (2006) study
- Provides *post hoc* justification for null associations with other exposure measures (*e.g.,* cumulative exposure) in this and in other studies of this cohort

"Types of LH Cancers Observed in Excess Varied"

- Each cancer is a different disease, with a different mode of action
- If a study reports a sig finding for A but not B, and another reports a sig finding for B, but not A – NOT consistent evidence of an association
- Cancer type with increased risks differ across cohorts/studies, mostly null findings
- No cancer type had increased risk consistently across exposure measures or studies

Esophageal and Pancreatic Cancer

- No consistent associations noted across studies
- Modes of action differ from each other and LH cancers
- Overall evidence is weaker when
  - individual cancer types are weakly supported
  - they collectively form no particular syndrome or pattern
  - the apparent positive outcomes appear in different studies

Summary

- Majority of associations with cancer NULL
- No consistent exposure-response
- Association with individual LH and other cancers inconsistent
- Risks not higher in RPC workers
- Evidence does not support the draft profile's classification of limited evidence of carcinogenicity based on "increased mortality or incidence of LH cancer"
- Styrene should be characterized as "not classifiable" based on NTP's criteria